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Health Attitude Changes as a Result of Participating in a Worksite Prenatial Education Program

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HEALTH ATTITUDE CHANGES AS A RESULT OF PARTICIPATING IN A WORKSITE PRENATAL EDUCATION PROGRAM

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HEALTH ATTITUDE CHANGES AS A RESULT OF PARTICIPATING IN A WORKSITE PRENATAL EDUCATION PROGRAM

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The purpose of this study was to determine whether differences in health beliefs exist between participants attending worksite prenatal education classes and participants receiving only prenatal education self-help materials. A multiple treatment study was performed on a sample of convenience of 169 women enrolled in Fruit of the Loom's worksite prenatal education program. Group 1 subjects received class and materials while Group 2 subjects received materials only. Study participants were asked to complete an 18-item Likert scale questionnaire prior to enrolling in the program and again upon completion. Sixty-two subjects completed both the pre- and posttest questionnaires. Analysis of covariance comparing posttest scores between groups using the pretest score as a covariate revealed no significant difference. Results from *t* test analysis on the questionnaire items revealed significant change in three of the items concerning importance of prenatal care, knowledge of healthy food choices, and abstinence from smoking.

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CHAPTER 1

Introduction

Women in their childbearing years constitute an increasing proportion of the U.S. workforce. It is estimated that by the year 2000, women will make up 63% of the persons entering the workforce (U.S. Dept.of Labor, 1988). Employers, especially those with a predominantly female workforce, have a vested interest in the health of their pregnant employees. More than 60% of these women will continue to work through their pregnancies.

Fewer women are opting to stay home after their babies are born. In 1990, half of the women who had babies were back in the workforce within a year of delivery (U.S. Bureau of the Census, 1993). In most cases, healthy pregnancies result in fewer absences from work and quicker returns to work after birth.

One of the ways many companies are attempting to control sky-rocketing health care costs is by offering prenatal health programs as a component of their maternal/infant initiatives (Healthy Babies, Healthy Business, 1993). While all low birthweight or premature births can not be prevented, at least one study has indicated that a comprehensive

prenatal health program may reduce the incidence of prematurity and low birthweight (Shapiro,1993).

Problem of the Study

The purpose of this investigation is to determine whether differences in health beliefs exist between participants attending worksite prenatal education classes and participants receiving only prenatal education self-help materials. Specifically, the investigation will attempt to determine if there is any change in health beliefs within and between both groups after completing the worksite prenatal education program. The investigator will compare differences in health beliefs among and between Group 1 subjects, participants attending prenatal education classes at the workplace, and Group 2 subjects, participants in the self-help approach, prior to entering the program and after program completion.

Definition of Terms

Certain terms need to be defined so that the reader can have a better understanding of this research:

1. Low birthweight: Defined as weighing less than 2,500 grams(less than 5 lbs. 8 oz.).
2. Premature birth: Defined as being born before 38 weeks of gestation.
3. Primiparous women: Defined as individuals that have borne only one offspring.
4. Multiparous women: Defined as individuals experiencing more than one pregnancy.

Need for the Study

Companies such as American Telephone & Telegraph Company (AT&T) and Southern New England Telephone Company (SNET) have implemented prenatal education programs. MacLachlan and Merkel (1990) evaluated a 12-week series prenatal education program conducted at AT&T Bell Laboratories. They found that a significant number of participants were able to identify positive behavior changes they made after completing the program. Perceived benefits of the program included more realistic expectations of labor and delivery, better communication with health care providers, and emotional support as a result of class interaction. In 1992, Southern New England Telephone Company (SNET) began its prenatal wellness program. The company, which provides health insurance for approximately 40,000 employees and their families, pays for 400 to 500 births per year. SNET's program called Babytrac identifies potential high-risk pregnancies and promotes the development of good health habits during pregnancy (Business Insurance, July 12, 1993).

There have been several studies conducted to examine behaviors and attitudes of participants toward worksite health promotion programs (Conrad, 1988). However, there has been little research that examines health attitude changes as a result of participating in a worksite prenatal education program. Most worksite prenatal health programs are

relatively new, and in most cases little evaluation has been conducted. A study of Fortune 500 companies with wellness programs showed that less than one-half of the study's respondents conducted any type of program evaluation at all (Hollander and Lengermann, 1988). Even fewer have actually measured changes in health behavior which impact positive pregnancy outcomes.

Companies with prenatal programs often use phrases beginning with "we believe" or "we think" when they describe their program's impact on health behavior. While it might make good management sense to provide prenatal education at the worksite, there is little research to support the theory that pregnant employees exhibit changes in health attitudes or behaviors as a result of participating in a worksite prenatal education program.

Hypotheses

A. Participants in a worksite prenatal program will exhibit a change in health beliefs based upon their participation in the program.

B. Participants in a worksite prenatal program that receive both classes and materials will exhibit a greater change in health beliefs than those that receive materials only.

Basic Assumptions

The assumptions of this study are as follows:

1. All respondents will answer their questionnaires honestly and correctly.

Limitations

1. The number of potential participants were limited to those Fruit of the Loom employees who were pregnant at the time of the study.

2. Only 15 of Fruit of the Loom's 39 facilities were selected to participate in this study. Six sewing facilities were included in Group 1, the class and materials program. The remaining 9 yarn and hosiery facilities and distribution centers were placed in Group 2, the materials only program.

3. Survey sites were divided into two groups according to type of prenatal education program already in place. Therefore, size of the comparison groups varied.

CHAPTER 2

Review of Literature

Employers are keenly aware of the high cost of unhealthy babies. Maternity-related expenses make up one of the largest components of their health care costs. According to a study commissioned by CIGNA Companies (1992), 1989 health care costs associated with poor pregnancy outcomes cost American businesses an estimated $5.6 billion.

Eleven premature infants cost the Sunbeam Appliance Company over $2 million over a two year period (Thompson and Bitowski, 1991). Between 1984 and 1988, 45% of Levi Strauss & Company's total medical costs were a result of newborns with health problems, while extremely immature newborns made up an additional 27% (Healthy Babies, Healthy Business, 1993).

The average cost for delivering a healthy baby is about $4,000 compared to $14,000 to $30,000 for the delivery of a low birthweight baby. Very low birthweight (under 3 lbs. 4 oz.) delivery charges range from $62,000 to $150,000. Lifetime medical costs for care and treatment for low birthweight can average $389,000 (Zicklin, 1992).

One reason for higher medical costs related to births is a result of advances in neonatal units which make it possible for premature infants weighing as little as 1-1/2 pounds to survive. Unfortunately these technological advances in medicine are coupled with higher medical expenses and continuing health problems for the surviving infant (Employee Benefits Management, 1991).

A 1992 U.S. Public Health Service report indicated that for every baby carried to term an average of $21,000 in hospital costs can be saved during the neonatal period as a result of better prenatal care. One dollar spent on prenatal care can save over $3 spent on medical care in the first year of life for a low birthweight baby (Corporate Summit for Children, 1992).

Graveley and Littlefield (1992) found that the cost of providing care could be reduced while still maintaining quality of care through utilization of low-risk prenatal care professionals such as nurses with physicians available for consultation. Rather than spending millions of dollars on physician and hospital costs, some researchers feel money could be spent more wisely through prenatal education and preventive strategies (Shapiro, 1993). Taren and Stanley (1991) found that women who received education on the early signs of preterm labor had significantly fewer low birthweight infants than women who had not.

The purpose of worksite health promotion is to bring about a change in people's behavior and lifestyle that will enhance health status and reduce the incidence of illness. Fielding (1981) considers the workplace well-suited for organized interventions to promote healthy behaviors. Many companies have claimed numerous potential advantages of health promotion programs for employees including reduced health related costs, reduced sick leave, increased co-worker and employer support for positive health behaviors, increased satisfaction with health activities, and improved health and quality of life (Hollander and Lingermann, 1988).

Novelli and Zeska (1982) suggest that health promotion programs should follow a three-step process of fostering awareness, influencing attitudes and identifying health behavior alternatives. Attitudes may be influenced and health behavior alternatives may be identified through educational intervention and long term reinforcement (Parkinson, 1982). The Institute of Medicine (1988) recommends that businesses, including government and health service agencies, provide a long-term public information campaign on the importance of prenatal care and the need to begin care early in pregnancy.

Studies have shown that lack of prenatal care and poor lifestyle habits, such as poor nutrition, smoking, and alcohol and drug use, are associated with low birthweight, prematurity and even death (Cagle, 1987). Hulsey and others (1991) found an association between prenatal care and poor

pregnancy outcome relating to low-birthweight and preterm deliveries. Lifestyle behaviors could influence whether a baby is born preterm or at a low birthweight (Witcher, 1989). Women who seek early and regular prenatal care and adopt positive health behaviors are less likely to deliver low birthweight and premature babies, yet 24% of mothers delivering live infants do not get prenatal care during the first trimester (Healthy People 2000: Review 1992, 1993). Hogue and others (1987) and Malloy and others (1992) found that babies born to mothers receiving prenatal care in the first trimester had considerably lower risk of infant mortality. For women delivering after 36 weeks of gestation, the risk of stillborn death and infant death was greater for women with no prenatal care than those receiving early care (Malloy and others, 1992).

Factors associated with premature births include low socioeconomic status, education, maternal age (younger than 20 and older than 40), infections, history of repeated abortions, and prior preterm births (March of Dimes, 1985). Chronic health problems associated with prematurity include diabetes, respiratory, heart and kidney disease, and toxemia. Those who are at greatest risk for poor pregnancy outcomes are adolescents, unmarried women and minorities (Greenburg, 1983).

Not keeping regularly scheduled prenatal appointments increases the risk for poor pregnancy outcomes (Korenbrot and

others, 1994 and Simpson and Phibbs, 1994). Barriers which prevent women from returning as scheduled include failure by the health care practitioner to recognize high risk individuals and accessibility to prenatal visits. Women not keeping regularly scheduled prenatal visits were more likely to be on medical assistance (St. Clair and Smeriglio, 1990).

When Sunbeam Oster Appliance Co. implemented its prenatal program in 1986, it found some female employees did not seek early prenatal care because taking off from work to keep a prenatal visit meant loss of pay (Thompson and Bitowski, 1991). Sunbeam Oster's prenatal program, which is offered on company time, urges employees to seek a doctor's care early in pregnancy.

Multiparous women were also under-utilizers of prenatal care. The Institute of Medicine cited in its Prenatal Care: Reaching Mothers, Reaching Infants, Summary and Recommendations (1988) that in 1985 nearly five percent of both first and second children were born to women who had late or no prenatal care. Six percent of women experiencing their third pregnancies received late or no prenatal care while those in their fourth and fifth pregnancies increased to 9 and 14%, respectively.

Reynolds and others (1990) found that both primiparous and multiparous women enrolled in prenatal education classes were equally knowledgeable of appropriate health practices. They found no significant difference between understanding

the need for prenatal care, relationship of smoking and low birthweight, effects of smoking on the mother and fetus, and the positive impact appropriate weight gain during pregnancy has on having a healthy baby.

Lifestyle behaviors such as drinking, smoking and misusing drugs can greatly impact pregnancy outcomes. Healthy People 2000's Maternal and Infant Health Objectives (1993) are to increase the proportion of pregnant women who receive prenatal care in the first trimester of pregnancy to at least ninety percent; to increase abstinence from tobacco by pregnant women to at least ninety percent; and to increase abstinence from alcohol, cocaine and marijuana by pregnant women by at least twenty percent.

Triendje and others (1992) found that there were positive benefits to including issues of good nutrition, prenatal care and abstinence from drinking as program components of a worksite prenatal program. McKirgan (1987) points out that a worksite prenatal program is not a replacement for seeking individual medical care. Through the group support of other pregnant co-workers, it serves to strengthen and supplement what a participant's health care provider is advising her to do during pregnancy and encourages her to continue regular medical care.

O'Connor and others (1992) report pregnancy is an ideal time to encourage women to quit smoking because prenatal care provides several smoking cessation intervention opportunities

with health care providers. Many women who smoke are already motivated to change their behaviors and cut down on the amount of cigarettes they smoke during the first trimester.

The benefits of abstaining from smoking during pregnancy are well-documented. Women who stop smoking during pregnancy are at lower risk of spontaneous abortion, stillbirth, premature delivery (Marion Merrell Dow Inc., 1991), and various complications of pregnancy including low birthweight, preterm labor, abruptio placentae, placentae previa and bleeding during pregnancy (Floyd et al, 1991) than those who continue to smoke. If a pregnant woman stops smoking as early as the 16th week of gestation, she lowers her risk of delivering a low birthweight baby equal to that of a nonsmoker (U.S.Department of Health & Human Services, 1980).

Many drugs, both illegal and legal, are passed from mother to fetus via the placenta and may result in serious consequences of their use. Illicit drug use, most significantly cocaine, can cause fetal distress and intrauterine growth retardation. Cocaine use during pregnancy increases the risk of very low birthweight, preterm low birthweight and impaired fetal growth (Petitti and others, 1990). Streissguth and others (1991) found high school dropouts, unmarried mothers, and black women to be at highest risk for maternal drug use. Mothers who report cocaine use during pregnancy also were more likely to use alcohol and other drugs.

Pregnant women who drink heavily during pregnancy are at risk of delivering a baby with some degree of alcohol-related physical or mental damage. The March of Dimes (1992) reports that one in every 750 babies is born each year with fetal alcohol syndrome (FAS), characterized by certain morphological abnormalities and often associated with mental retardation. Approximately 50,000 infants are born each year with fetal alcohol effects (FAE), a condition characterized by some, but not all, of the birth defects associated with FAS. Since no data is available indicating at what level drinking during pregnancy is safe, if at all, the U.S. Surgeon General recommends women to abstain from alcohol throughout pregnancy (1981).

Proper nutrition during pregnancy plays a significant role in the development of a healthy baby. A major factor contributing to low birthweight is related to the weight gain of the mother during pregnancy. The Institute of Medicine recommends that pregnant women gain an average of 25 to 35 pounds and consume 300 or more additional calories per day to ensure proper nourishment for the developing fetus (March of Dimes, 1992). Using the U.S. Department of Agriculture's Food Guide Pyramid, pregnant women can follow a healthful diet which provides adequate nutrients and an appropriate amount of calories per day (FDA Consumer, 1993).

In summary, low birthweight and premature births are more likely to be associated with serious health problems and higher medical costs than are healthy births. Early prenatal care and healthy lifestyle behaviors during pregnancy greatly enhance a woman's chance of a positive pregnancy outcome.

Chapter 3

Methods and Procedures

This study was designed to collect information from worksite prenatal education participants for determining the relationship between participation in worksite classes and change in health attitudes and beliefs during pregnancy.

Hypotheses

A. Participants in a worksite prenatal program will exhibit a change in health beliefs based upon their participation in the program.

B. Participants in a worksite prenatal program that receive both classes and materials will exhibit a greater change in health beliefs than those that receive materials only.

Location of the Study

With a history dating to 1926, Fruit of the Loom (FTL) is a nearly two billion dollar, Fortune 300 knit/apparel manufacturer with operating headquarters in Bowling Green, Kentucky. Employing approximately 34,000 people throughout the United States, Fruit of the Loom manufactures and markets

apparel for men, boys, ladies, girls, infants and toddlers (Fruit of the Loom History, 1994).

Fruit of the Loom incurred health care costs of $58 million for 72,000 employees and family members in 1993. Of the 1130 babies born to FTL employees that year, 39 were categorized as premature (BC/BS Detailed Utilization Report, 1993).

In 1993, Fruit of the Loom implemented its Expectant Parent Program, an on-going worksite prenatal educational program, through the company's wellness program. Two levels of the program were developed:(1) information only approach and (2) 12-class seminar series. The type of facility and employee population size determined which level of the program was implemented at each worksite. The class series program was offered at facilities operating on 8-hour shifts, employing over 800 employees with approximately 75% of the workforce being women, and providing fixed lunchtime schedules. Facilities operating on 12-hour shifts, having a smaller workforce, and providing a flexible lunchtime schedule offered the information only program.

Incentives were given to encourage participation in the program. All Expectant Parent Program participants received a $100 U.S. Savings Bond if they began prenatal care in their first trimester of pregnancy and kept all prenatal appointments. Participants enrolled in the 12-class series received an additional incentive for class attendance. A

infant/toddler car seat was given to those participants who attended 10 out of 12 seminars. The classes, lasting between 45 and 60 minutes, were conducted every two weeks during the lunch hour.

For the facilities implementing the 12-class series, lay leaders were trained to conduct the program. Occupational backgrounds of the lay leaders included wellness coordinator, personnel manager, supervisor, benefits counselor, emergency medical technician, nursing assistant, clerk and secretary. Lay leader selection, based upon interest level and ability to work with others, was determined by each facility's plant management.

Lay leaders were trained to teach five seminars from the March of Dimes Babies & You Level III program, a prenatal health promotion program to educate employees about lifestyle behaviors that affect pregnancy outcome (Healthy Babies, Healthy Business, 1993). Training, educational materials and technical assistance were provided to lay educators by the March of Dimes. The selected Babies & You seminars included Prenatal Care, Eating for Two: Nutrition During Pregnancy, Making the Right Choices for a Healthy Pregnancy, Exercise during Pregnancy and Stress and Pregnancy. As each new topic was presented in class, participants received March of Dimes educational materials on prenatal care, smoking, alcohol, drugs, exercise, and nutrition.

Seven supplemental seminars offered in the 12-class series were conducted by professionals from the local community. Physicians, nurses and health educators presented seminars on preterm labor, childbirth, breastfeeding and newborn care. There was also a seminar on the company's insurance benefits, leave of absence policy and Family Medical Leave Act conducted by each facility's benefits counselor.

Facilities offering the information only approach administrated the program through their personnel departments. Informational packets were given to participants upon enrolling in the program. These packets included the same March of Dimes educational materials that were distributed in the facilities conducting the Babies & You class series.

Participants of the Study

Fifteen FTL facilities located in Alabama, Arkansas, Kentucky, Louisiana, North Carolina and South Carolina participated in the study. A sample of convenience was comprised of employees who enrolled in the company's Expectant Parent Program.

Group 1 was comprised of program participants at six of the survey sites. These sites had a predominantly female workforce and accounted for 47% of all 1993 FTL births. Individuals employed at these facilities were offered the

12-class series as a component of a prenatal education program.

The remaining nine survey sites made up Group 2. These facilities had a smaller workforce and lower birth rates than Group 1 sites. Only 7% of 1993 FTL births were experienced at Group 2 facilities. Individuals employed at these locations were provided the prenatal program but were not offered worksite classes.

Twenty-four FTL locations that offer the 12-class seminar series were omitted from the study in order to limited the number of Group 1 participants. Those facilities excluded from the study account for the remaining 46% of the 1993 births.

Instrumentation

A pretest/posttest, 18-item questionnaire using a nine-point Likert scale was developed by the author. To test the reliability of the questionnaire, a pilot study was conducted at a FTL facility not included in the pretest/ posttest study. Thirteen women enrolled in the prenatal education program participated in the pilot study. To show more of a change in attitude shift from pretest to posttest, the wording of the questionnaire was changed to "force" participants' answers to the middle of the scale in an effort. For example, the statement "I could have serous health problems if I don't get prenatal care" was changed to

"I will have serious health problems if I don't get prenatal care."

The questionnaire measured health attitudes and beliefs in six areas: prenatal care, smoking, alcohol use, drug use, exercise and nutrition. The questions were scored from (1) "strongly agree" to "(9) "strongly disagree," with (5) being "neither agree nor disagree." Other information collected in the questionnaire included age, race, number of prior pregnancies and whether the individual had sought prenatal care prior to enrolling in the program.

Reliability of the instrument was assessed using Cronbach alpha for internal consistency. The alpha level was 0.8368.

Data Collection

Prenatal program administrators at each of the participating facilities were instructed to ask each new enrollee to fill out the questionnaire upon signing up for the program. At the end of six months, program participants were asked to fill out the questionnaire a second time.

Upon completion of the pre- and posttest questionnaires, program administrators mailed the surveys, which had been coded by location, to FTL's headquarters for data analysis.

Chapter 4

Results

Description of Study Sample

There were 169 individuals from 15 sites participating in the study. One hundred forty-one individuals were in Group 1 (class and materials) and 28 were in Group 2 (materials only). Sixty-two of the 169 individuals completed both the pretest and posttest questionnaires. The remaining 107 participants did not complete the second questionnaire for several reasons. Eighty-two participants were unable to complete the six month program before the end of the study's time period, 14 participants had miscarriages, four were on leave of absence from work, five participants changed employment, and two individuals dropped out of the program before completion.

Comparison of Subjects Who Were Pretested Only to Pretest/Posttest Subjects

Table 1 compares the pretest only participants to the pretest/posttest participants in term how they are distributed between groups. Comparison of maternal age for pretest only and pretest/posttest individuals in Table 2

Table 1. Comparison Of Pretest Only Subjects and Pretest/Posttest Subjects for Group 1* and Group 2**

	Group 1		Group 2	
	N	%	N	%
Pretest Only	89	83.2	18	16.8
Pretest/Posttest	52	83.9	10	16.1

* Materials only

** Class and materials

Table 2. Age Comparison by Pretest Only Group and Pre/Post Group

	N	Mean Age	St. Dev.	F	Sign.
Pretest/Posttest	62	25.45	4.44	3.25	n.s.
Pretest Only	98	27.04	5.96		

shows that the mean age of the pretest only group was no different from the pretest/posttest group. Pretest/posttest subjects' ages ranged from 19 to 37, while the pretest only group's ages ranged from 18 to 43. Using analysis of variance, no significance difference was found.

Table 3 demonstrates the race distribution of the pretest only group and the pretest/posttest matched pairs. Table 4 compares parturition status between the pretest only group and the pretest/posttest group. No significant difference was found using analysis of variance. Prior to enrolling in the program, 84.7% (n=83) of pretest only subjects and 77.4% (n=48) of pretest/posttest subjects reported they had sought a doctor's care. The remaining 15.3% (n=15) pretest only and 22.6% (n=14) pretest/posttest had not. Table 5 shows that there was no significant difference using chi square, in this regard, between these two groups.

Test of Hypotheses

Table 6 shows results from analysis of covariance comparing posttest scores between groups (Group 1: classes and materials; Group 2: materials only) using the pretest score as the covariate. No significant difference was found.

Differences between the pretest mean and the posttest mean are shown in Table 7. Using a *t* test, no significance was found. Table 8 compares pre- and posttest scores for each of the 18 questionnaire items. Results from *t* test analysis

Table 3. Race Comparison by Pretest Only and Pre/Post Group

	Pretest Only		Pre/Post	
	N	%	N	%
Caucasion	66	61.68	39	62.90
African American	29	27.10	20	32.26
Other	1	.93	2	3.23
Missing	11	10.29	1	1.61
Total	107	100.0	62	100.0

Chi square = 5.68, n.s.

Table 4. Comparison of Parturition Status by Pretest Only Group and Pre/Post Group

	N	Mean # of Pregnancies	St. Dev.	F	Sign.
Pretest/ Posttest	62	1.94	.885	.032	n.s.
Pretest Only	98	1.91	.975		

Table 5. Comparison of Pretest Scores on Medical Doctor Visit Status By Pretest Only Group and Pre/Post Group

Have You Been To A Doctor For This Pregnancy Yet?	Pretest Only		Pre/Post	
	N	%	N	%
Yes	83	84.7	48	77.4
No	15	15.3	14	22.6
Total	98	100.0	62	100.0

Chi square = 1.35, n.s.

Table 6. Comparison of Posttest Scores Between Groups 1* and Group 2** With Matched Pairs, Using Pretest Score As Covariate

	N	Posttest Mean	SS	F	Sign.
Group 1	47	36.96	124.19	0.705	n.s.
Group 2	11	39.64			

* Class and Materials

** Materials Only

Table 7. Comparison of Pre- and Posttest Scores for Group 1* and Group 2** Combined

	Mean	St. Dev.	t	n.s.
Pretest	37.77	12.86	0.15	n.s.
Posttest	37.46	13.99		

* Class and Materials

** Materials Only

Table 8. Comparison of Pretest/Posttest Scores For Individual Items

Question Item		Mean	St. Dev.	t	Sign.
Q.1	Pretest	1.7	1.38	1.5	n.s.
	Posttest	1.45	0.84		
Q.2	Pretest	1.35	0.72	1.98	0.05
	Posttest	1.14	0.50		
Q.3	Pretest	3.3	2.6	1.79	n.s.
	Posttest	2.82	2.06		
Q.4	Pretest	2.3	1.58	-.48	n.s.
	Posttest	2.41	1.54		
Q.5	Pretest	2.65	2.15	.96	n.s.
	Posttest	2.39	2.0		
Q.6	Pretest	5.45	2.8	-5.25	.000
	Posttest	7.35	2.18		
Q.7	Pretest	1.56	.94	1.42	n.s.
	Posttest	1.35	.77		
Q.8	Pretest	1.85	1.28	1.25	n.s.
	Posttest	1.62	1.4		
Q.9	Pretest	2.31	1.84	1.2	n.s.
	Posttest	2.03	1.6		
Q.10	Pretest	1.93	1.95	.62	n.s.
	Posttest	1.75	1.43		
Q.11	Pretest	2.14	1.9	1.33	n.s.
	Posttest	1.75	1.64		

Table 8 Continued. Comparison of Pretest/Posttest Scores For Individual Items

Question Item		Mean	St. Dev.	t	Sign.
Q.12	Pretest	1.47	1.29	-2.09	.041
	Posttest	1.93	1.77		
Q.13	Pretest	1.37	1.47	-.26	n.s.
	Posttest	1.44	1.2		
Q.14	Pretest	1.91	2.06	.70	n.s.
	Posttest	1.7	1.69		
Q.15	Pretest	2.21	1.72	1.84	n.s.
	Posttest	1.73	1.20		
Q.16	Pretest	2.06	1.93	-.06	n.s.
	Posttest	2.08	1.66		
Q.17	Pretest	1.51	1.78	.52	n.s.
	Posttest	1.36	1.37		
Q.18	Pretest	1.5	1.58	.06	n.s.
	Posttest	1.48	1.42		

revealed significant change in scores after program participation for relationship questions two ($p<.05$), six ($p<.000$), and twelve ($p<.041$)(see appendix for questions items.)

Discussion

Finding no significant difference between groups may be a result of the small sample size (n=62). A larger sample size would have provided more power to detect change within the groups. Freiman and others (1978) found that an insufficient number of subjects in clinical trials prevented the detection of differences between treatment and control groups. Champion (1970) recommends that when using statistical analysis on a subdivided sample a minimum of 100 cases should be included in the sample.

Chapter 5

Conclusion

A multiple treatment pretest/posttest study was conducted to determine the relationship between participation in worksite classes and change in health attitudes and beliefs during pregnancy. No significant relationship was found comparing age, race, parturition status or medical doctor visit status between people who completed only the pretest questionnaire verses those that completed the pre- and posttest questionnaires. No significant difference was found between the pre- and posttest scores, though there was a significant improvement on three individual questionnaire items. When the posttest scores for the two treatment groups were compared, using the pretest score as a covariate, no significant difference was found.

Discussion

The outcome of this study may have been different had there been a larger sample size (Group 1: 52 subjects; Group 2: 10 subjects). However, due to the time constraints of this study and lack of control over participants' timing of pregnancy, it was impossible to regulate sample size.

Other possible reasons for this lack of difference are as follows:

1. The individuals administrating the questionnaire at Group 1 sites were the same individuals who conducted the worksite classes. Group 1 participants may have altered their answers on the pretest questionnaire to reflect what they thought class leaders perceived as "correct" answers.

2. The materials alone provide adequate information about the importance of prenatal care and healthy lifestyle practices during pregnancy, therefore the classes were unnecessary. While this explanation is possible, it is unlikely it to be the reason for the difference, given the characteristics of participants.

3. Trainers/training were inadequately trained or otherwise ineffective.

Limitations

The Expectant Parent Program had already been implemented company-wide for approximately one year by the time this study began. Had this study been implemented when the worksite prenatal program was introduced by the company, a control group could have been established.

The study included women who enrolled in the program

between July and October and completed the program between January and April. Because participants completed the pre- and posttest at varied times, it is possible that unforeseen events occurring during the time period may have influenced the participants' responses.

Applicability

The study findings should not deter the development of worksite prenatal education programs at other companies. It is too soon to draw conclusions based on this study. Attitude change, an intangible benefit of attending a worksite prenatal education program, is only one element that can be measured to determine the program's effectiveness. Tangible benefits such as health care savings, retaining valuable employees, and early return to work are much easier to measure. Companies who are considering implementing worksite prenatal education should consider the program's design when developing their own programs.

Recommendations

Though this study was completed for the purpose of this thesis, the data collection should be continued in order to increase the sample size for further analysis. There should be an attempt to collect the remaining 82 posttest questionnaires as pretest only participants complete the six month program.

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Appendix A

Prenatal Questionnaire

Please take a few minutes to fill out the questionnaire below. Read each statement carefully. On a scale of 1 to 9, circle the number that you feel honestly describes how you feel. The number 1 means you strongly agree with the statement and the number 9 means you strongly disagree. Of course, you may use any number between. Your answers will be kept confidential.

1. I will definitely have a healthy baby if I take good care of myself during my pregnancy.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

2. The earlier I begin prenatal care, the greater the chance I will have a healthy baby.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

3. I will have serious health problems I don't get prenatal care.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

4. Poor eating habits like skipping meals or eating junk food will cause serious health problems for my baby.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

5. Eating healthy while I'm pregnant will keep me from gaining too much weight.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

6. I'm not sure which foods are good for me and my baby.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

7. Moderate exercise is good for me and my baby.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

8. Exercising during my pregnancy will make me feel better.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

9. Getting regular exercise while I'm pregnant will get me back to my old self after I have the baby.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

10. If I smoke during pregnancy it will cause my baby to be too small or have other health problems.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

11. If I smoke while I'm pregnant it will hurt my baby.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

12. I feel better when I don't smoke while I'm pregnant.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

13. If I drink during pregnancy, it will cause the baby to have birth defects.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

14. Just a few drinks will hurt my baby.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

15. If I drink during pregnancy, my baby will be born with lifelong disabilities.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

16. Taking drugs while I'm pregnant will cause my baby to be born too soon or too small.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

17. Something bad will definitely happen to my baby if I take drugs while I'm pregnant.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

18. Taking drugs while I'm pregnant will cause my baby to be born too soon or too small.

Strongly Agree				Neither Agree Nor Disagree				Strongly Disagree
1	2	3	4	5	6	7	8	9

19. What is your age? _____ years.

20. What is your race? (please check one)

_____ Caucasian _____ African American _____ Hispanic _____ Other

21. This is my _____ pregnancy (first, second, third, etc).

22. Have you been to a doctor for this pregnancy yet? Yes _____ No _____

Appendix B

Babies and You Program Seminars

Prenatal Care

This seminar stresses the importance of early and regular prenatal care. Topics included in this session include lifestyle behaviors that promote a healthy pregnancy, signs and symptoms of pregnancy, selection of a health care provider, discomforts of pregnancy and warning signs which should be reported to the health care provider.

Eating for Two: Nutrition During Pregnancy

This seminar explains how a woman's diet before, during and after pregnancy relates to the well-being of both mother and baby. Topics covered include the relationship of maternal weight gain to infant birthweight, recommended weight gain, and guidelines for a healthy diet.

Making the Right Choices for a Healthy Pregnancy

Using tobacco, drugs and alcohol during pregnancy can have serious health consequences to the developing fetus. This seminar includes topics on the importance of avoiding tobacco, drugs, and alcohol as well as not using over-the-counter medications unless prescribed by a doctor who knows she is pregnant. Ways to make positive lifestyle behavior changes are also discussed.

Exercise During Pregnancy

Exercise during pregnancy can be safe and beneficial for most women. This seminar discusses the physiologic changes during pregnancy, the importance of talking with the health care provider to adapt an exercise routine during pregnancy, and what types of exercise and activities are considered safe or unsafe.

Stress and Pregnancy

This seminar describes the effects of stress and their significance to pregnant women. Participants identify sources of stress in their lives and strategies for avoiding, eliminating, or coping with stress.